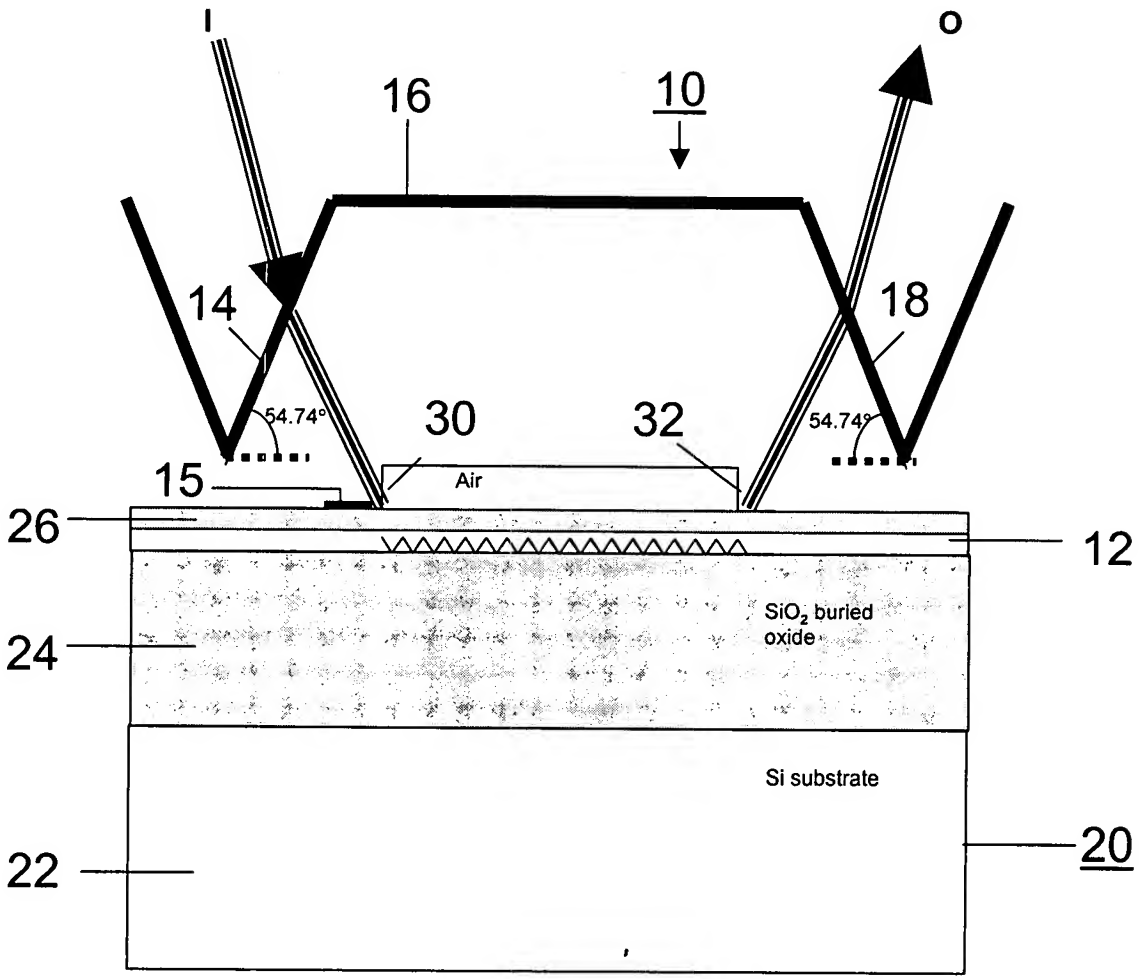

FIG. 1.

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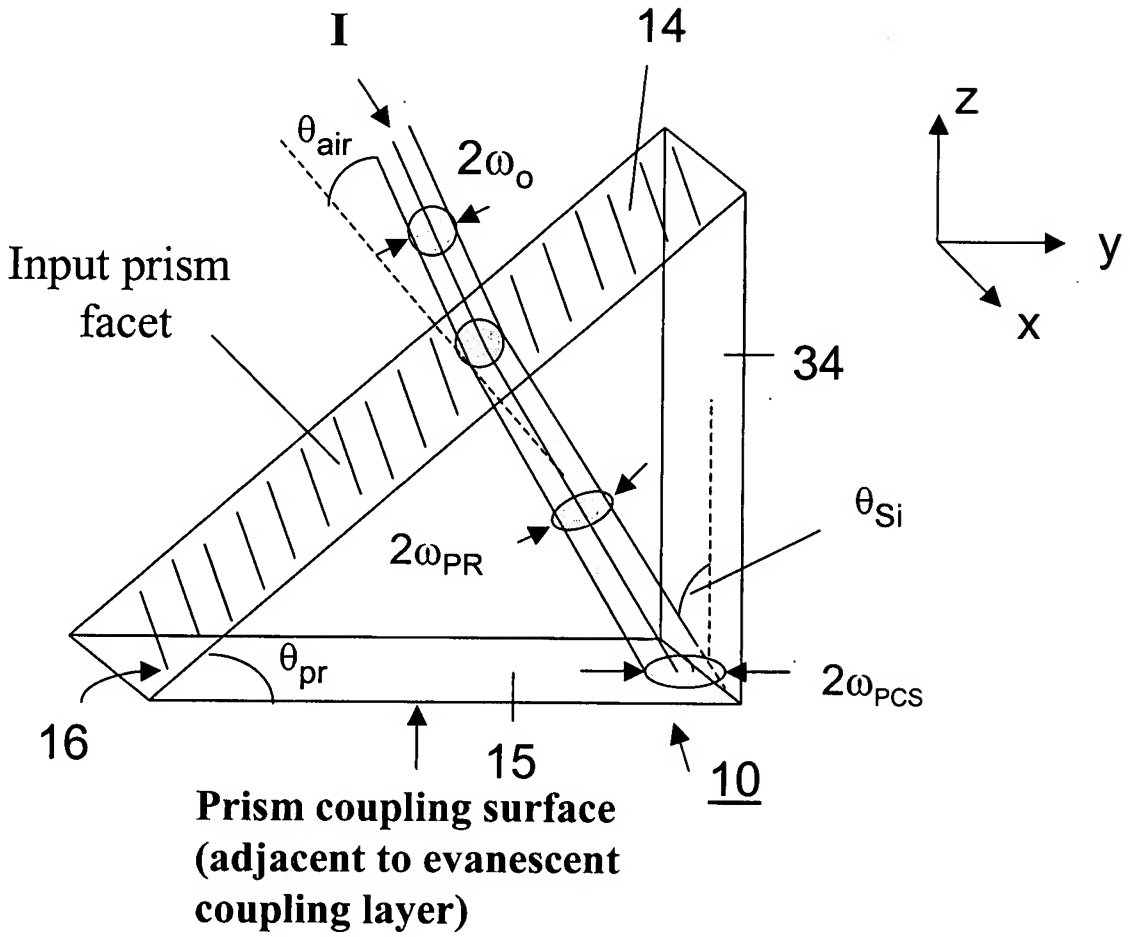

FIG. 2.

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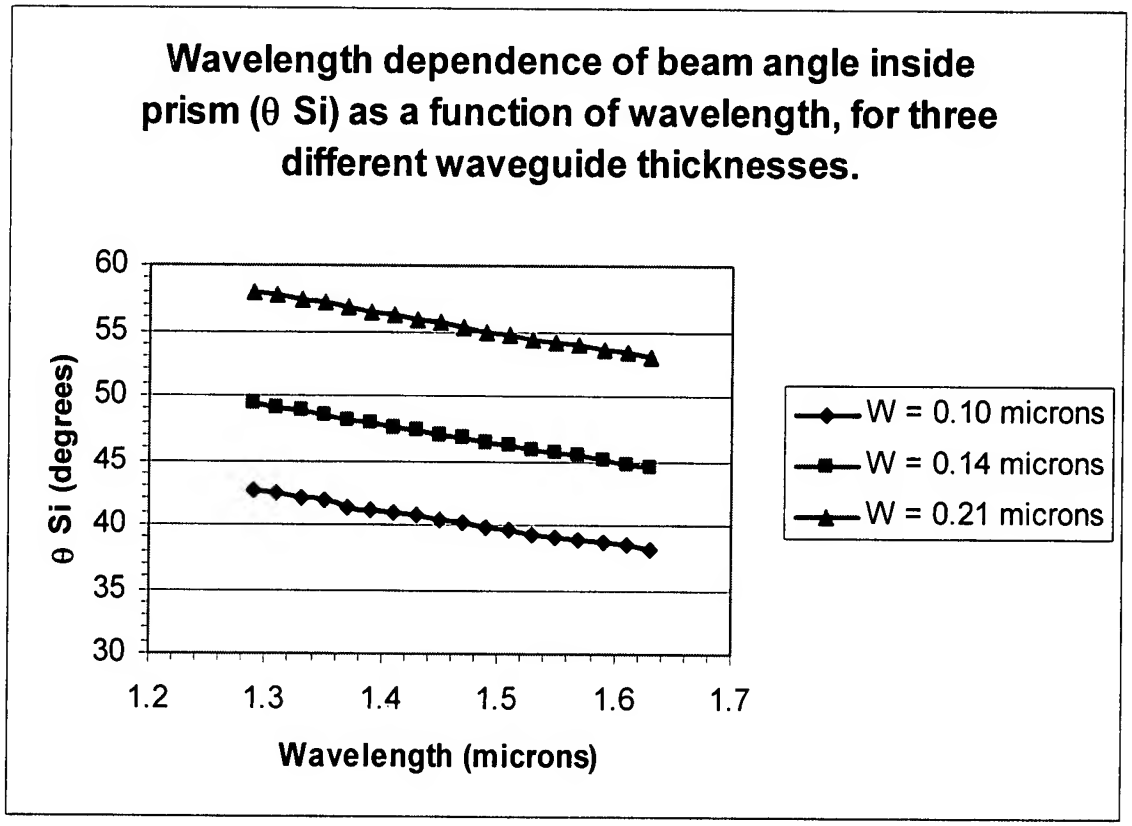

FIG 3.

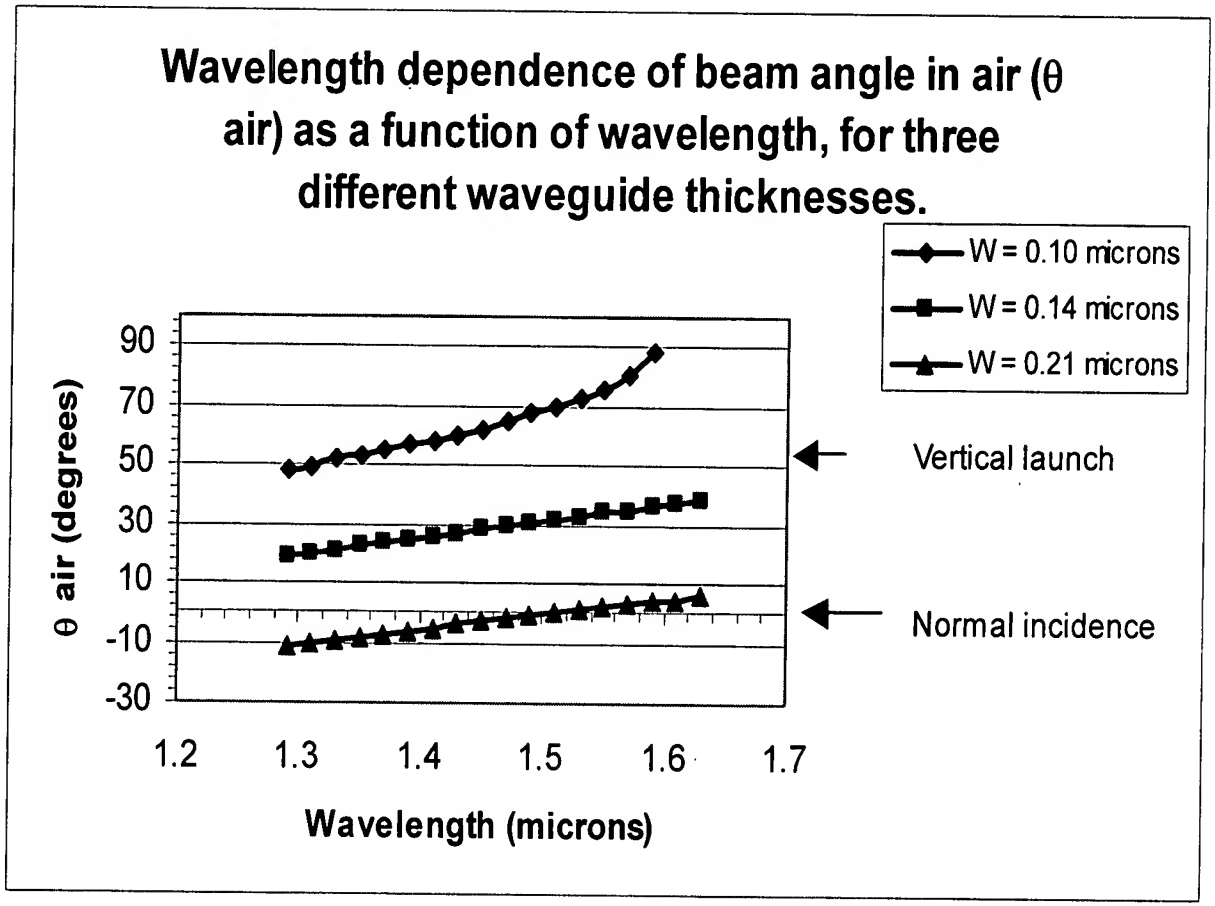

FIG. 4.

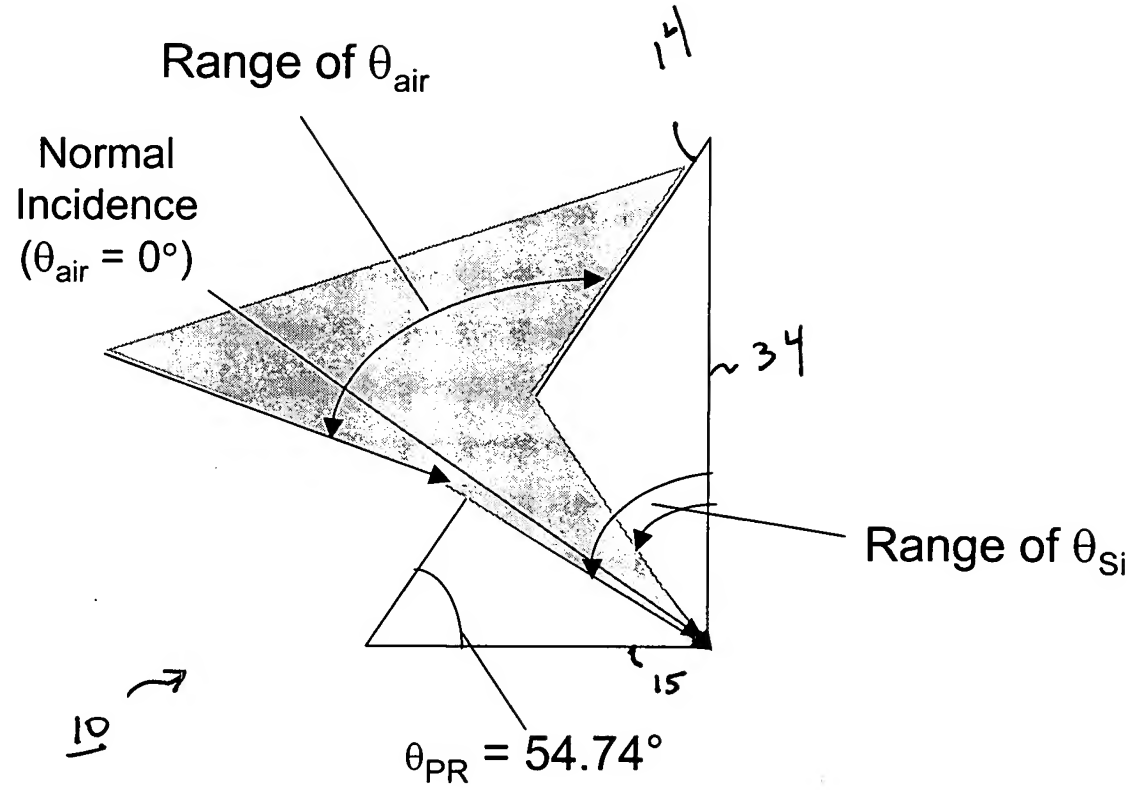
Range of θ_{air}
Normal Incidence (θ_{air} = 0°)
14
34
Range of θ_{Si}
15
10
θ_{PR} = 54.74°

FIG. 5.

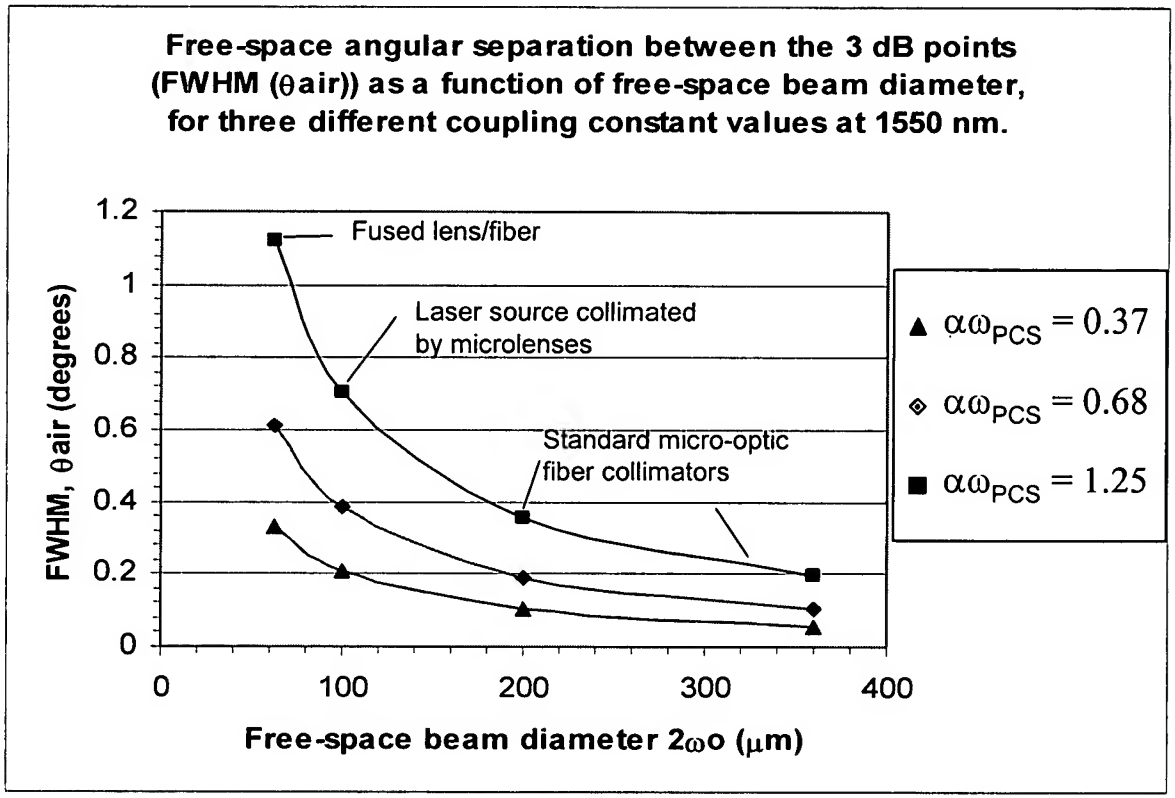

FIG. 6.

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n = 1.45 for evanescent layer

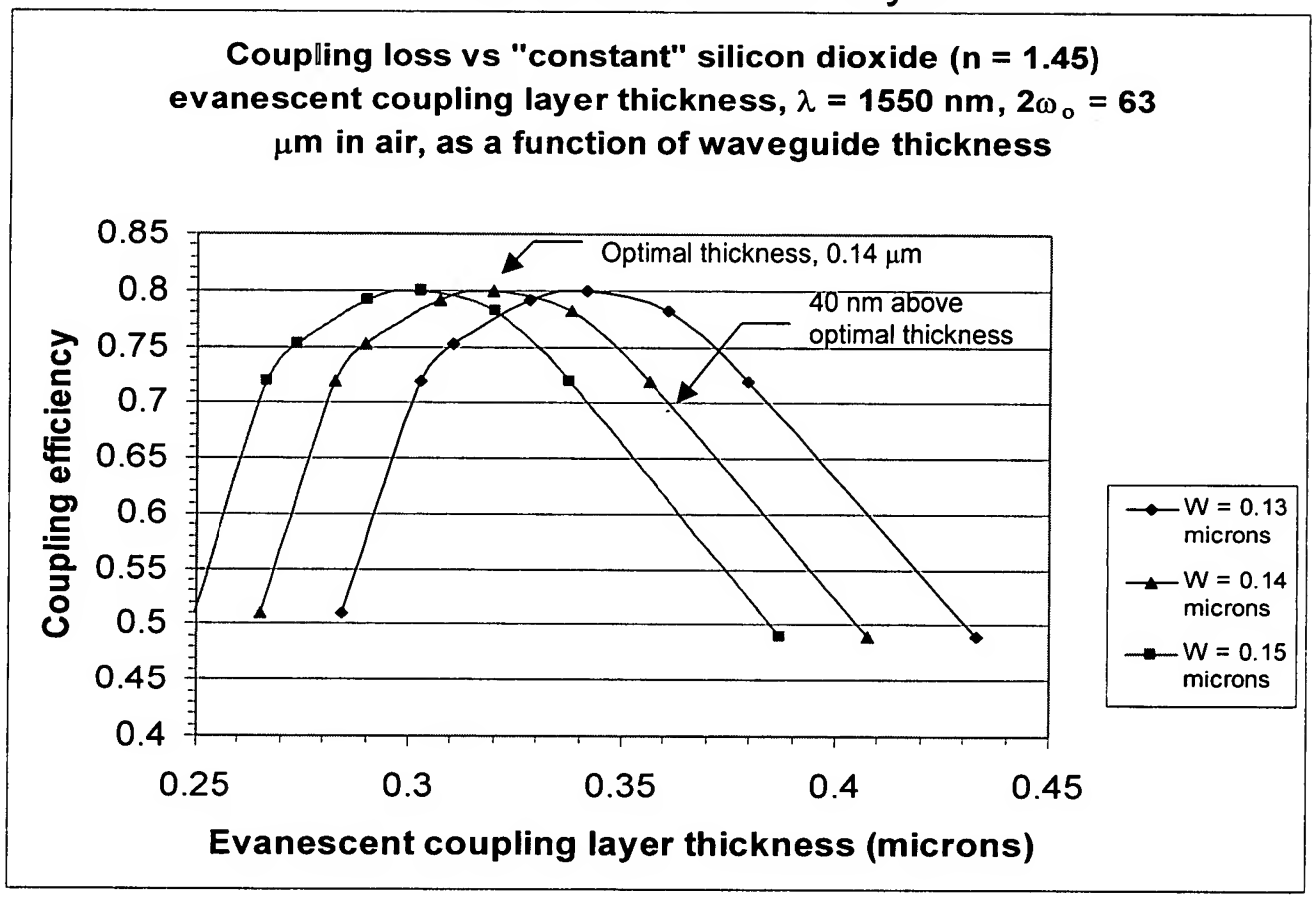

FIG. 7.

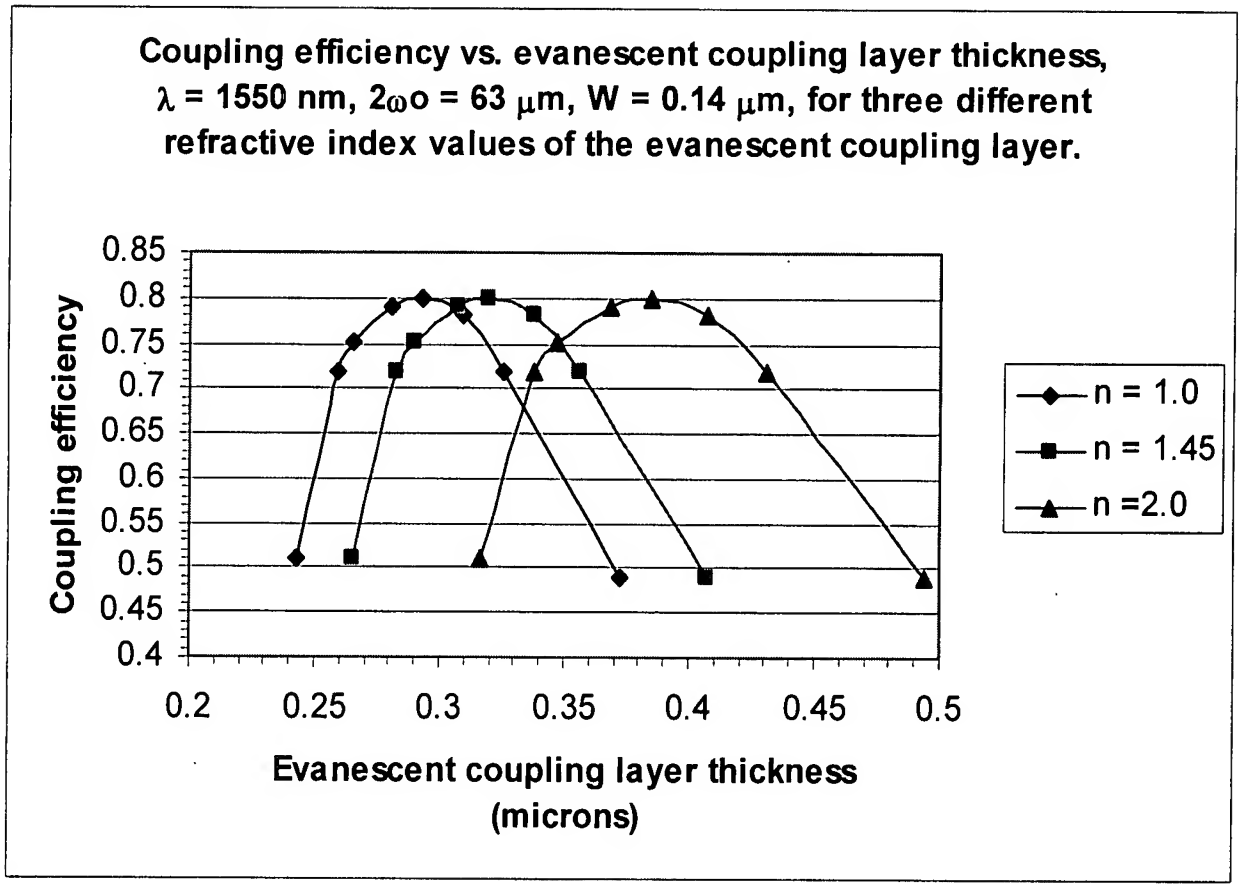

FIG. 8.

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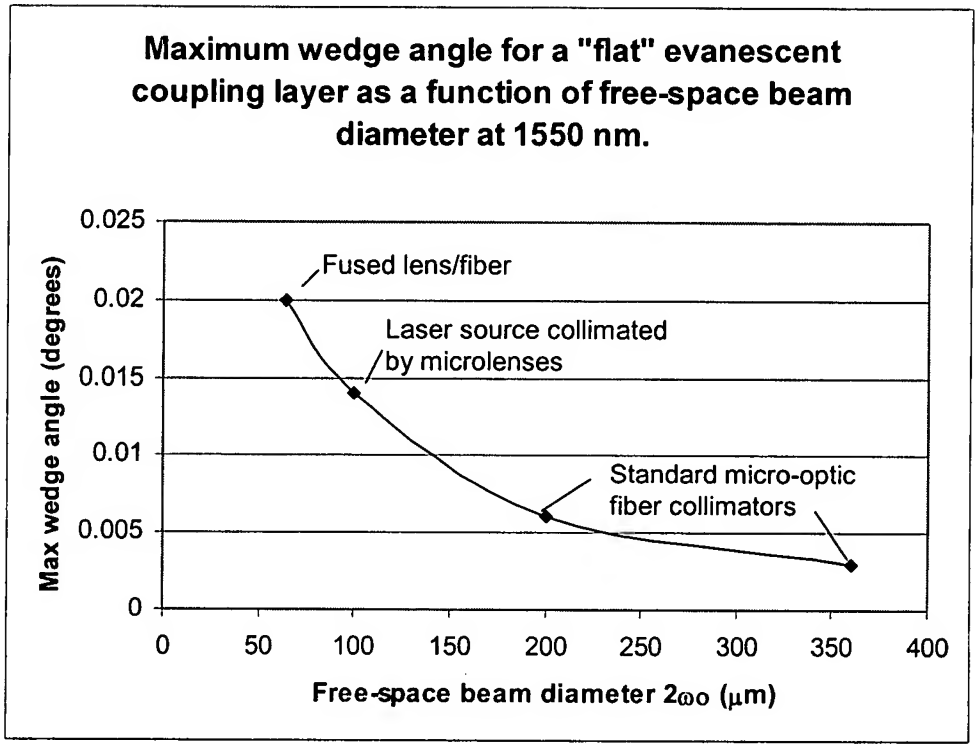

FIG. 9.

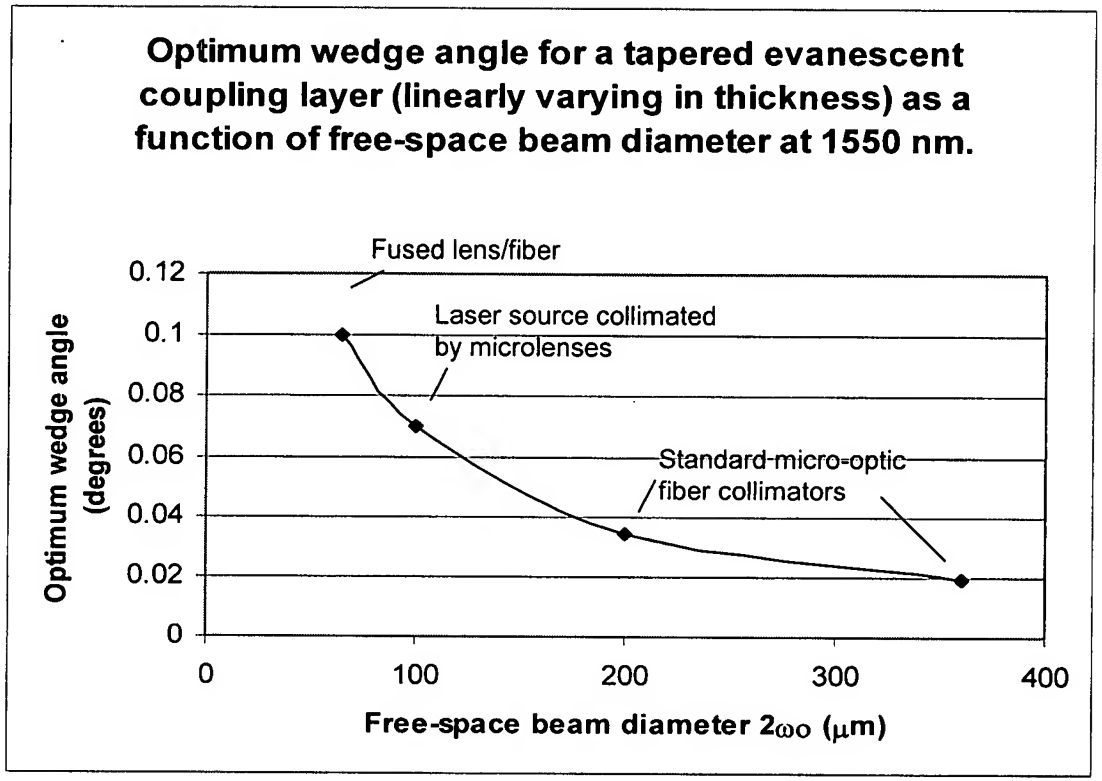

FIG. 10.

Graphs of $2\omega_{PCS}/2\omega_o = \{1 - (\sin\theta_{air}/n_{Si})^2\}^{1/2}/\{\cos\theta_{air} * \cos\theta_{Si}\}$

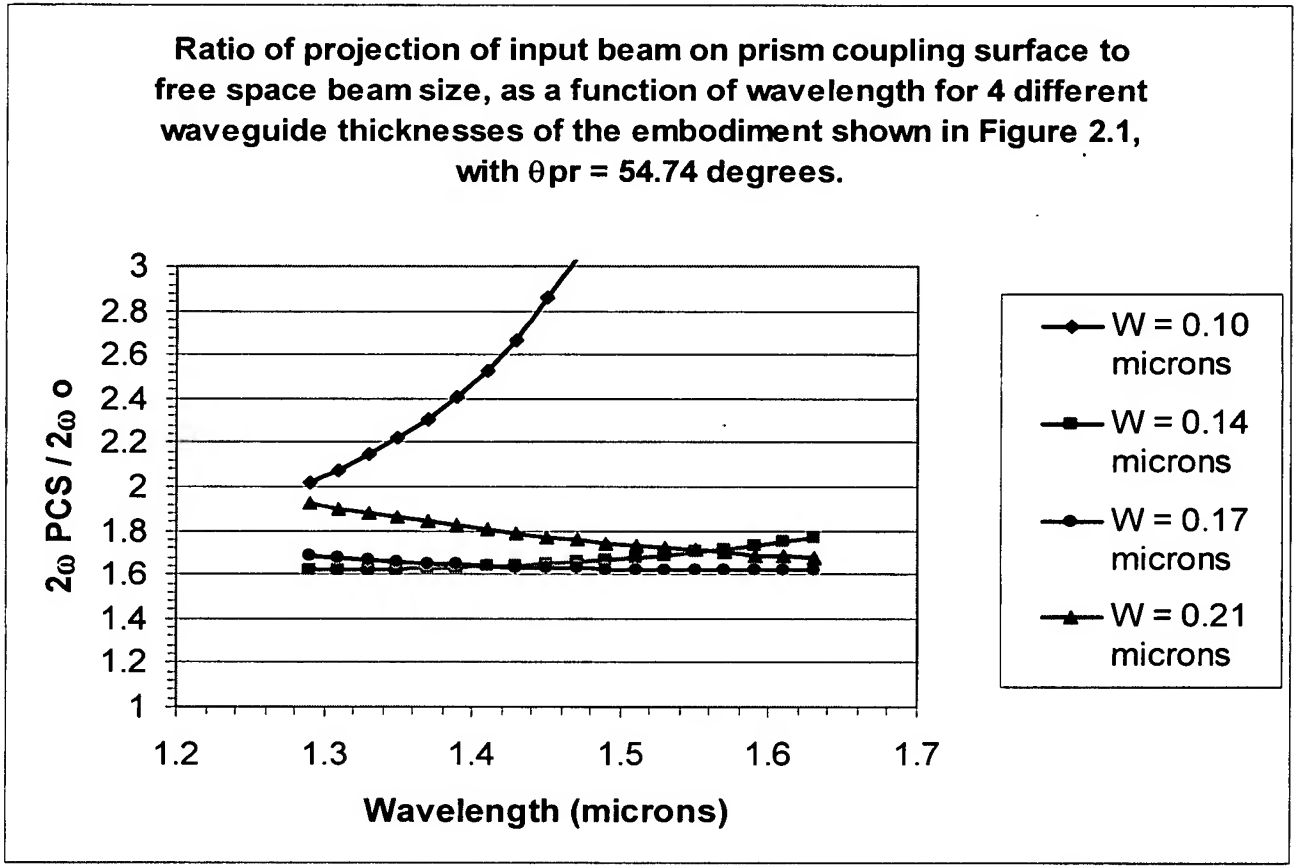

FIG. 11.

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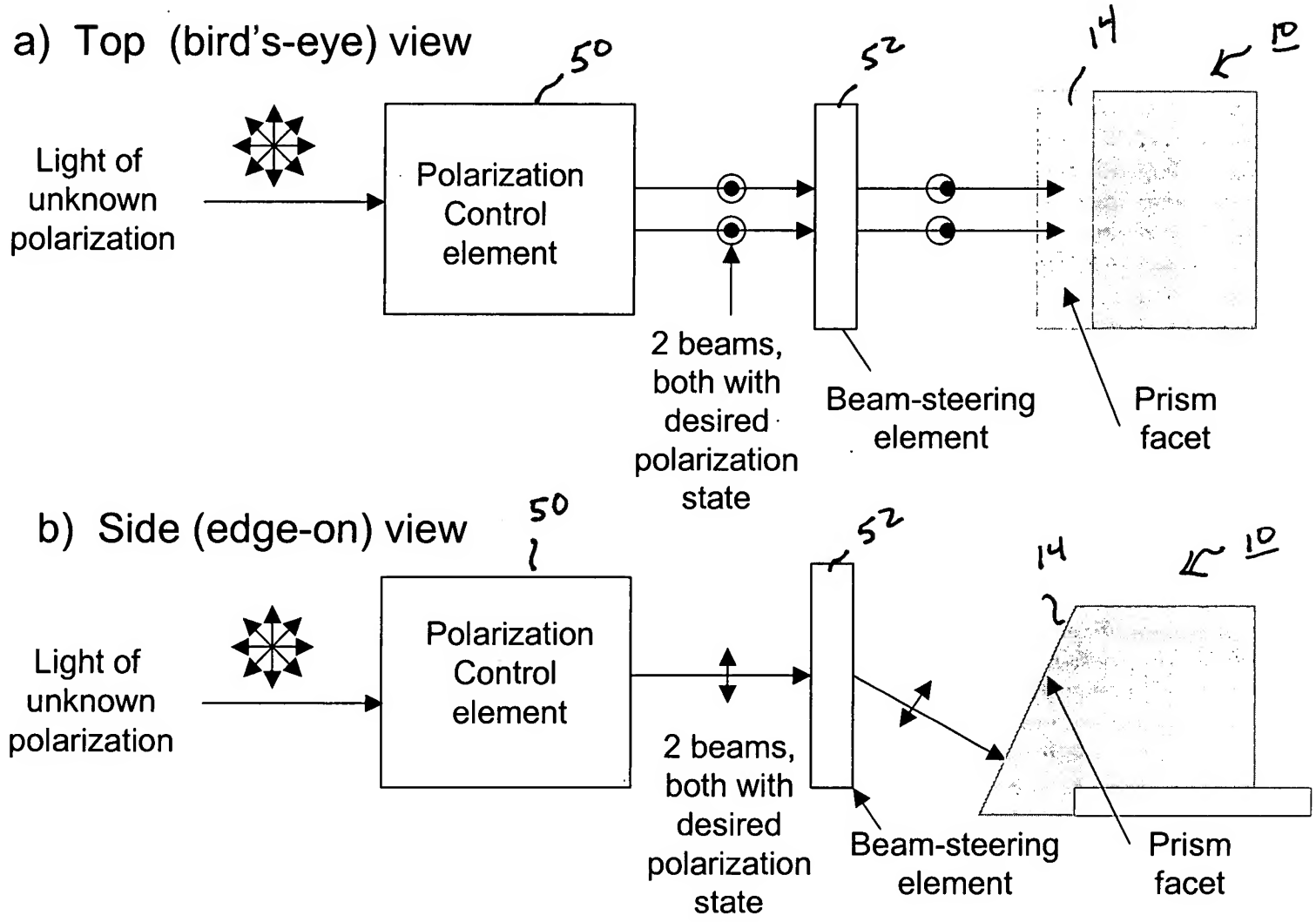
a) Top (bird's-eye) view
50
52
14
10
Light of unknown polarization
Polarization Control element
2 beams, both with desired polarization state
Beam-steering element
Prism facet
b) Side (edge-on) view
50
52
14
10
Light of unknown polarization
Polarization Control element
2 beams, both with desired polarization state
Beam-steering element
Prism facet

FIG. 12.

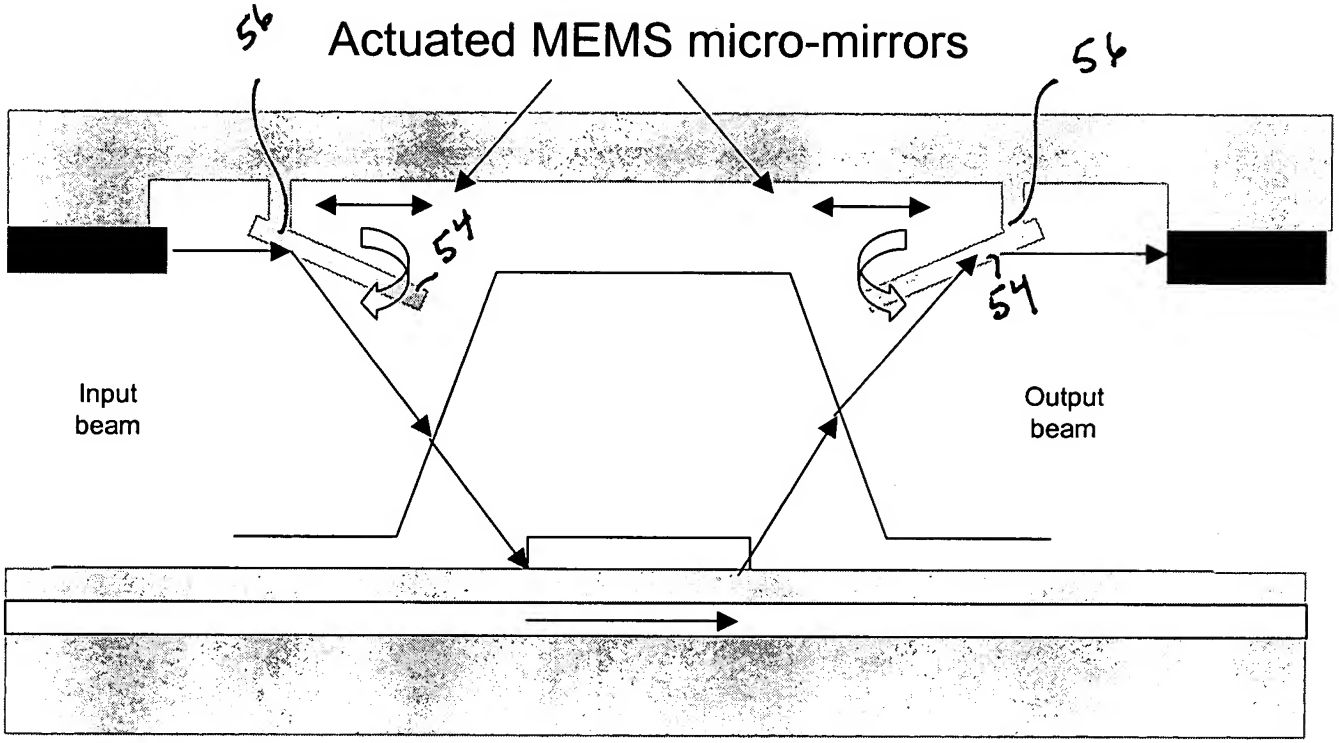
56
Actuated MEMS micro-mirrors
56
54
54
54
Input
beam
Output
beam

FIG. 13.

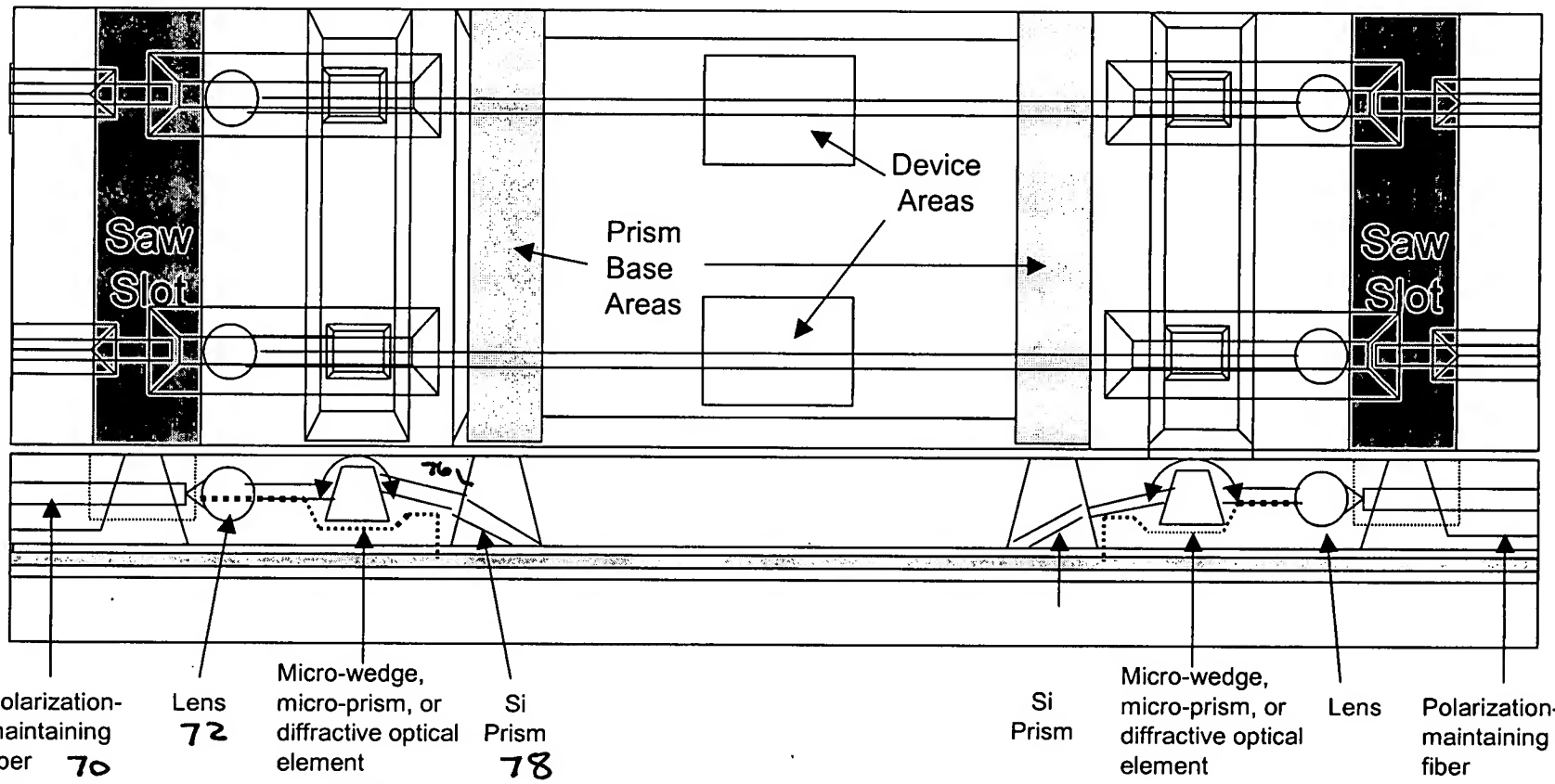
Saw Slot
Prism Base Areas
Device Areas
Saw Slot
Polarization-maintaining fiber 70
Lens 72
Micro-wedge, micro-prism, or diffractive optical element 74
Si Prism 78
Si Prism
Micro-wedge, micro-prism, or diffractive optical element
Lens
Polarization-maintaining fiber

FIG. 14.

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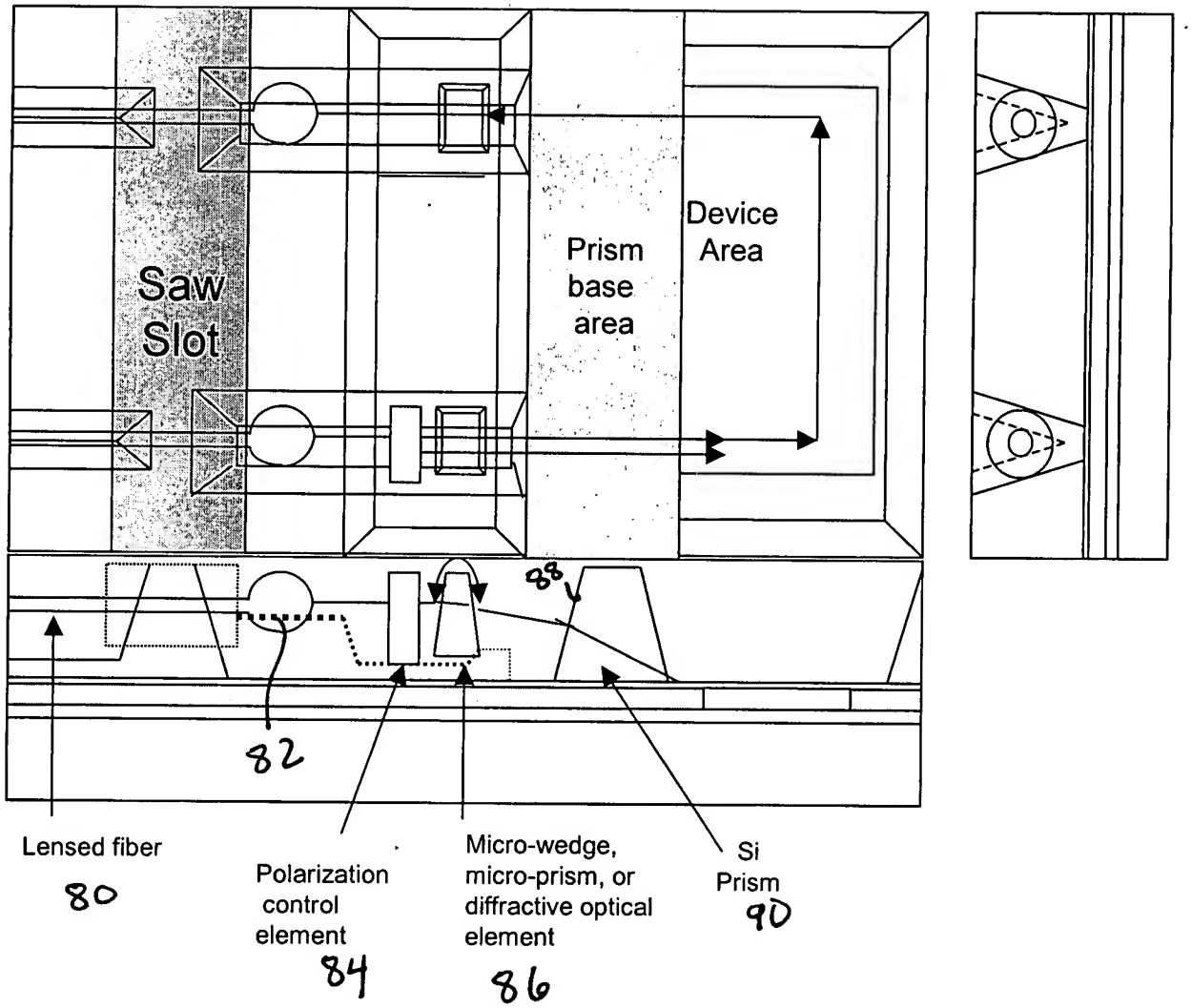

FIG. 15.

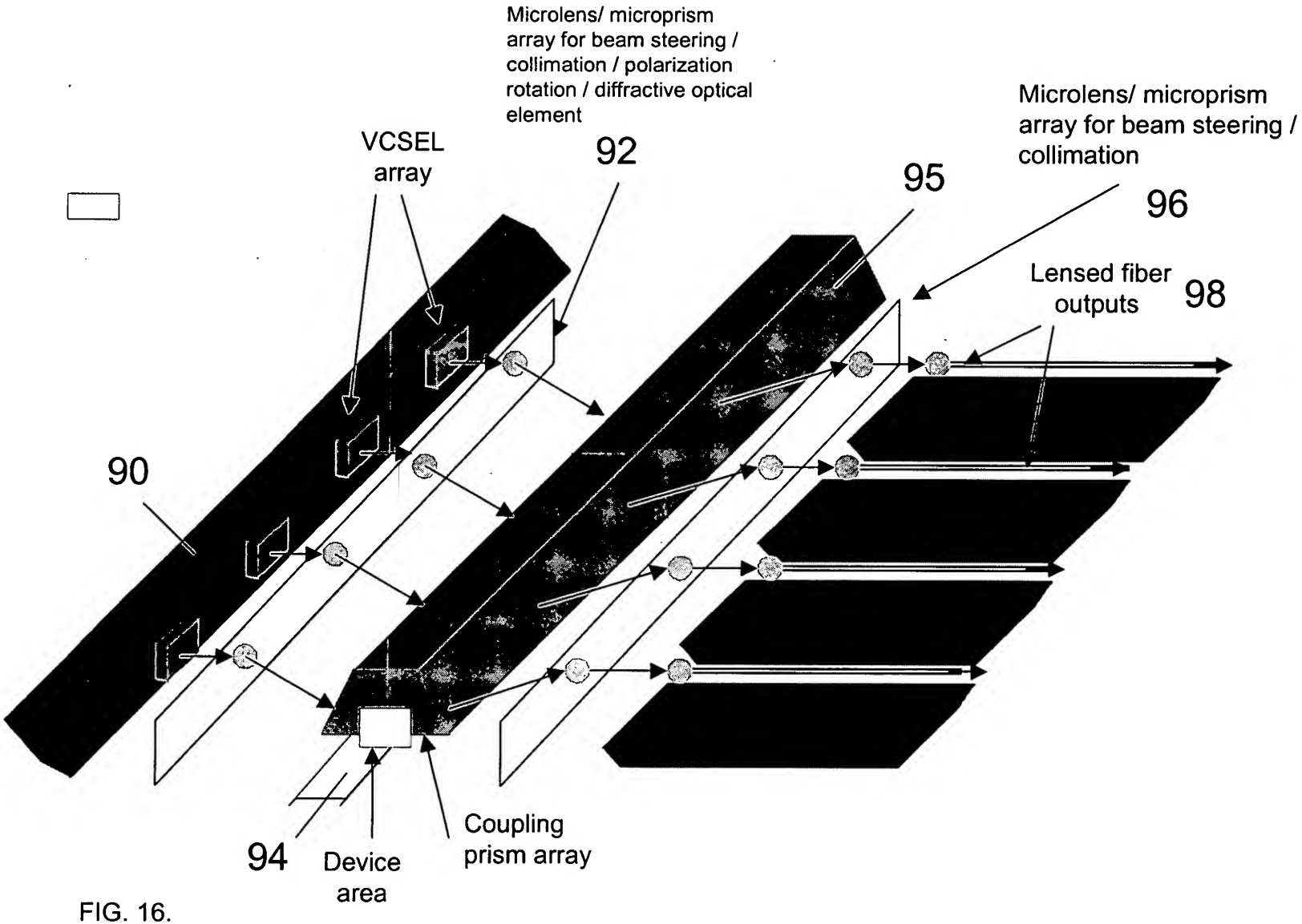
Microlens/ microprism array for beam steering / collimation / polarization rotation / diffractive optical element
VCSEL array
92
95
Microlens/ microprism array for beam steering / collimation
96
Lensed fiber outputs
98
90
94
Device area
Coupling prism array

FIG. 16.

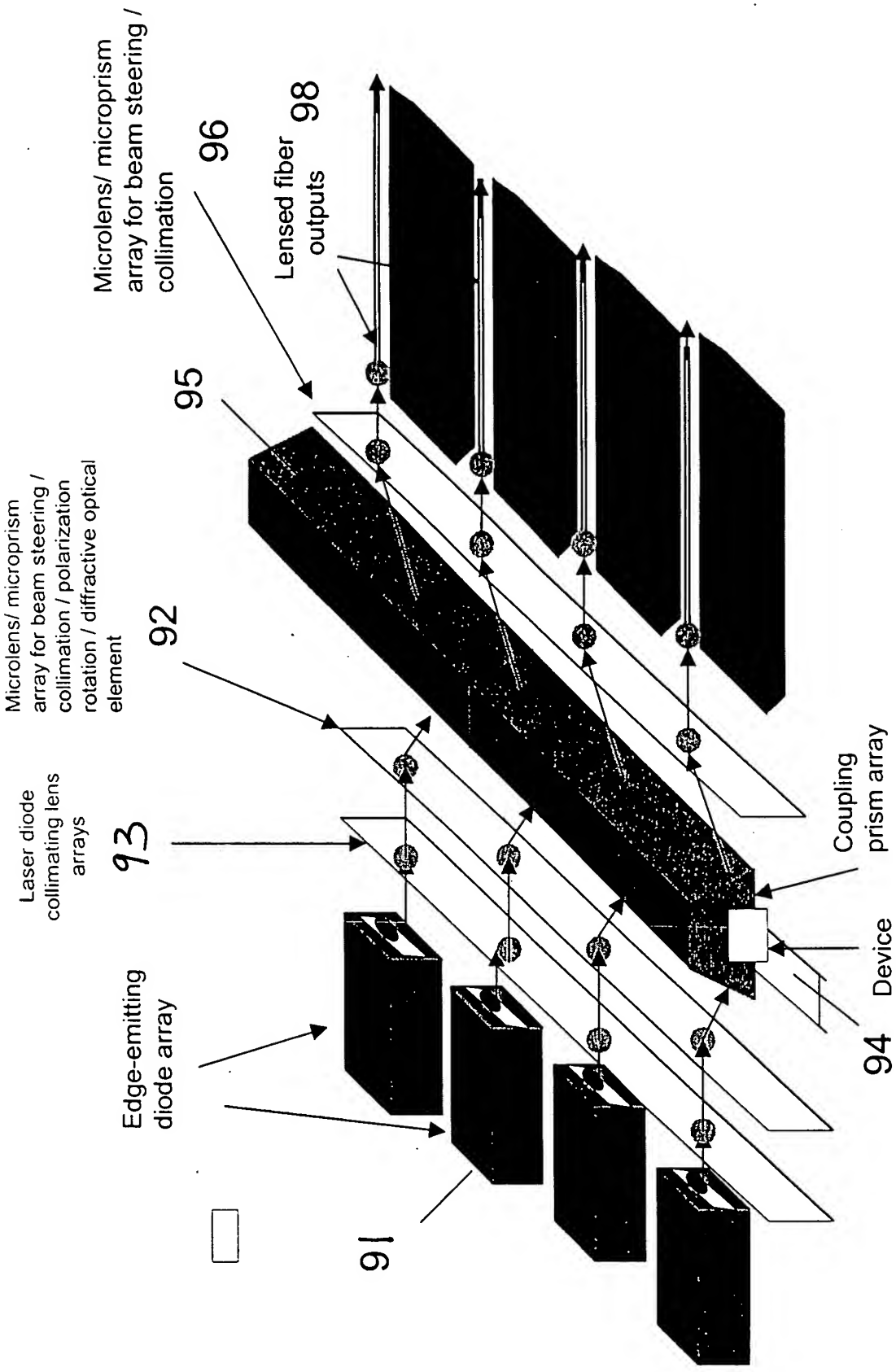
Edge-emitting diode array
Laser diode collimating lens arrays
93
Microlens/ microprism array for beam steering / collimation / polarization rotation / diffractive optical element
92
95
Microlens/ microprism array for beam steering / collimation
96
Lensed fiber outputs
98
Coupling prism array
Device area
94
91

FIG. 17

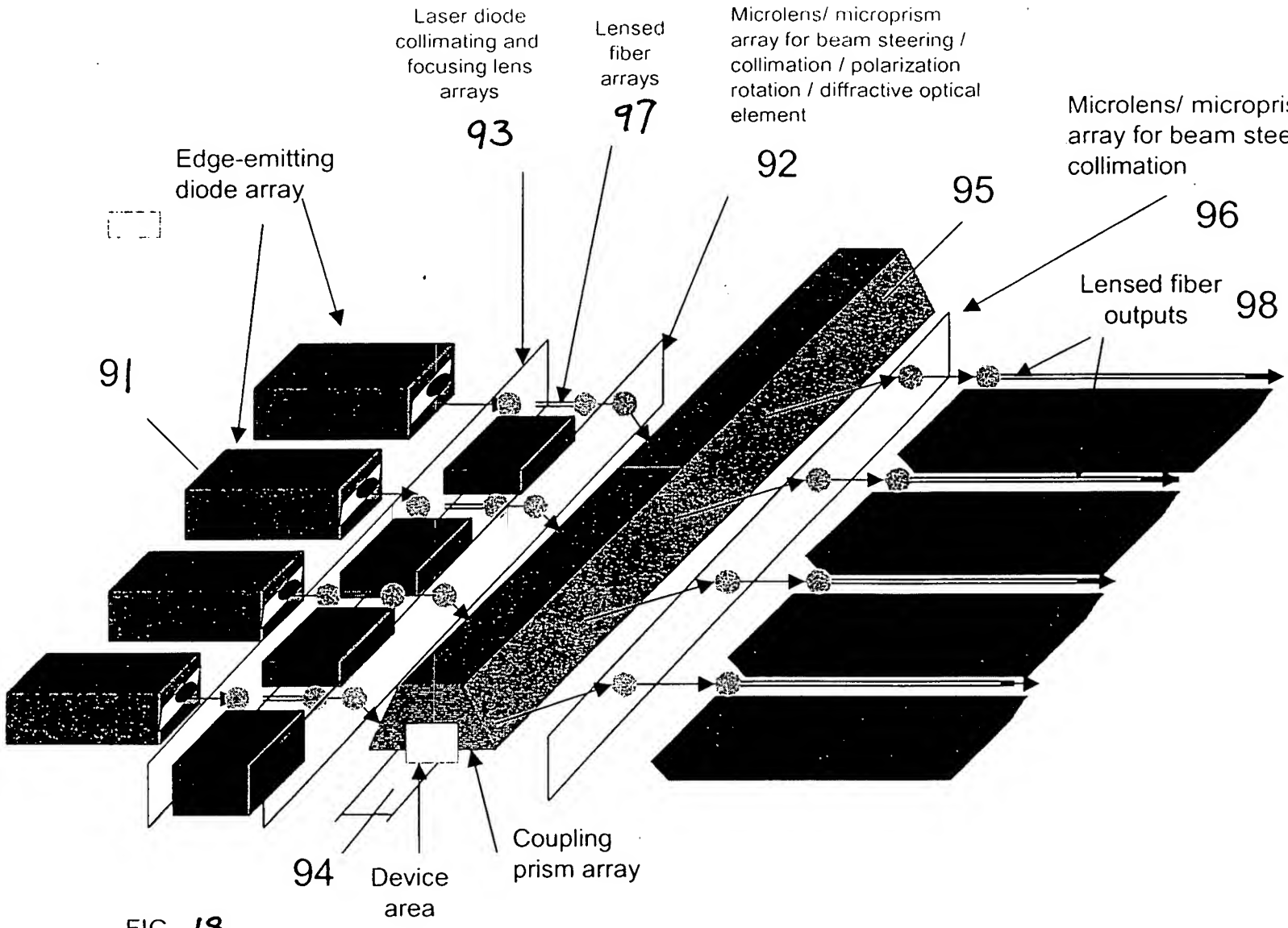
Laser diode collimating and focusing lens arrays
93
Lensed fiber arrays
97
Microlens/ microprism array for beam steering / collimation / polarization rotation / diffractive optical element
92
Microlens/ microprism array for beam steering / collimation
96
95
Edge-emitting diode array
91
Lensed fiber outputs
98
94
Device area
Coupling prism array

FIG. 18

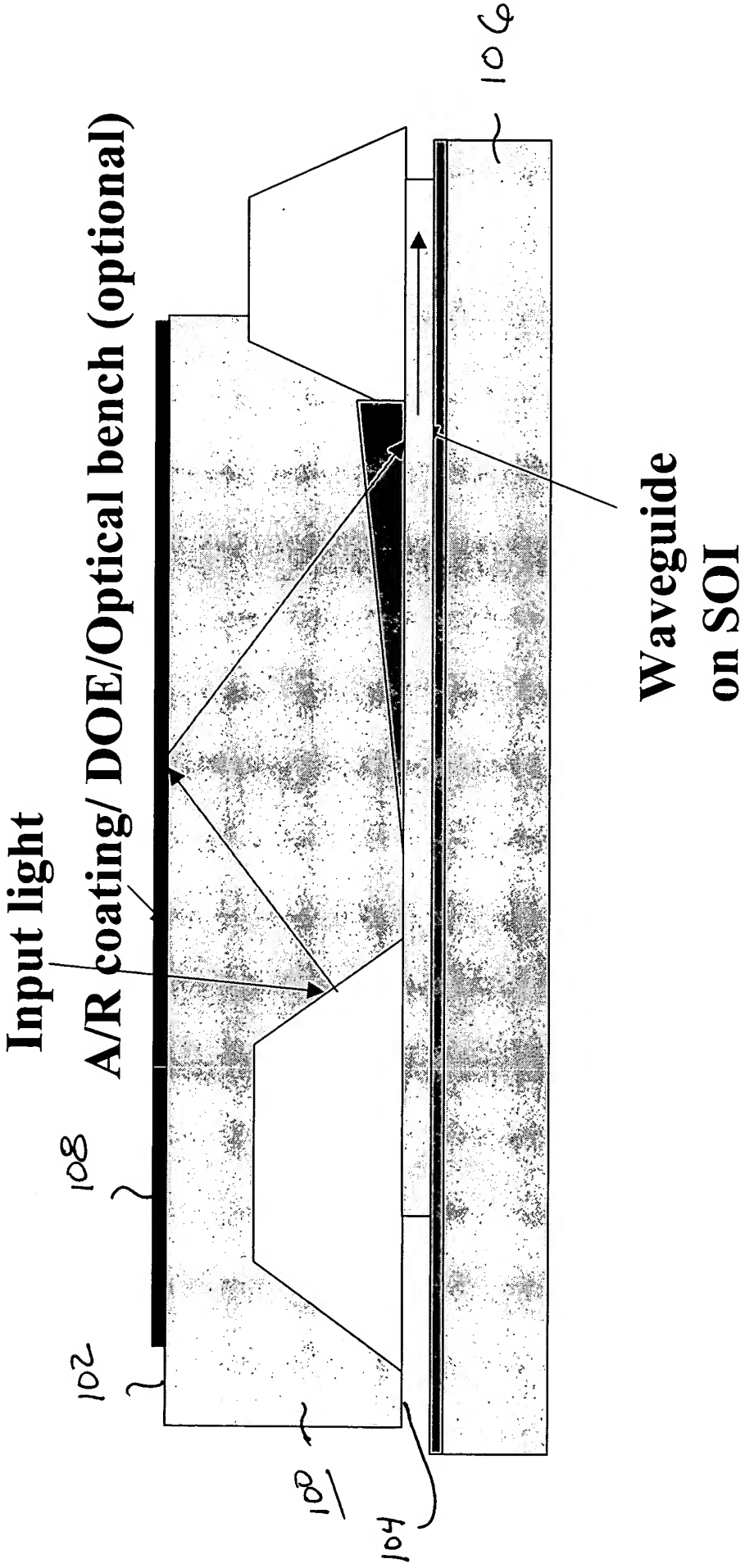
Input light
A/R coating/ DOE/Optical bench (optional)
Waveguide
on SOI
102
108
100
104
106

FIG. 19.

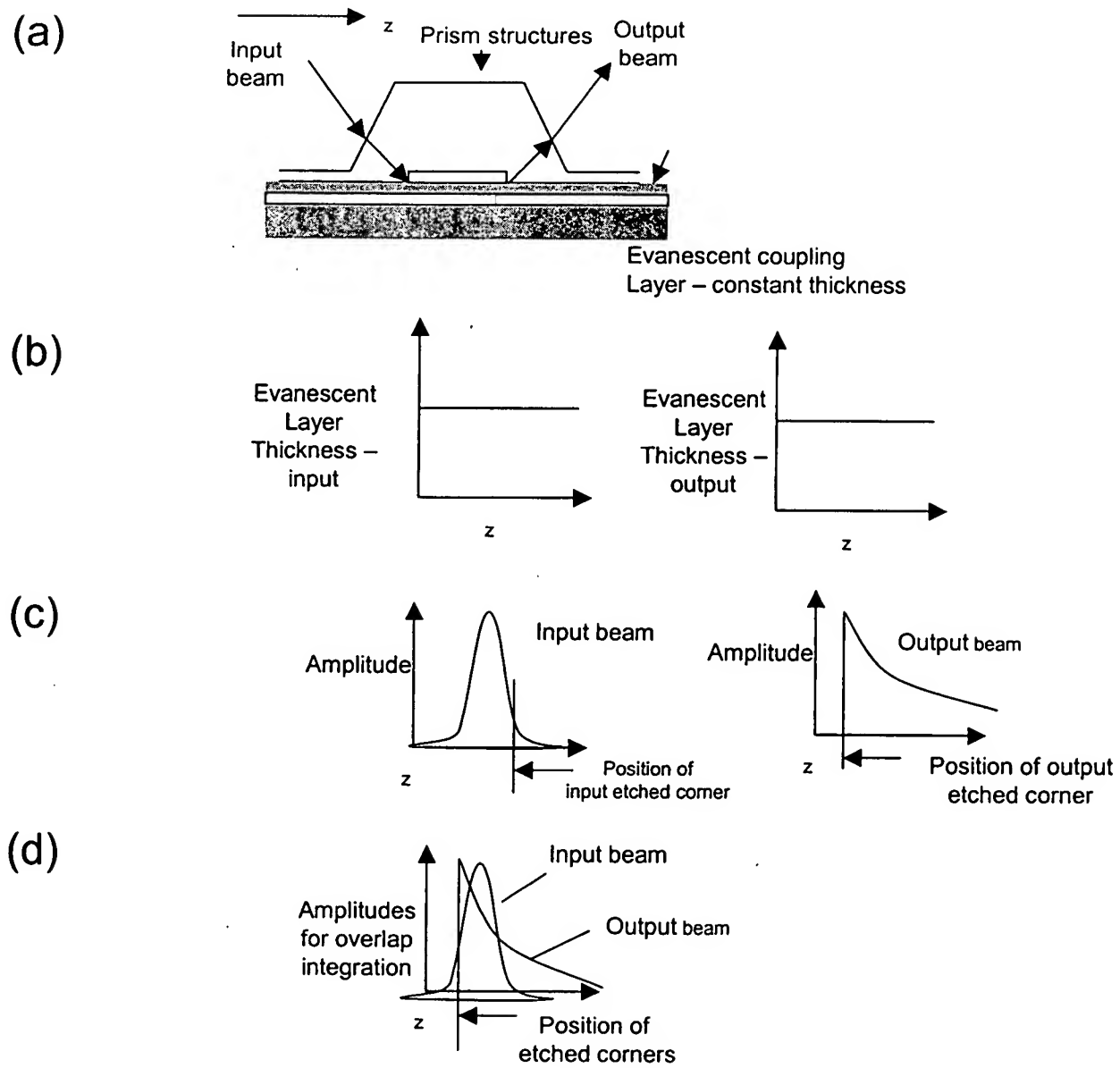

FIG. 20

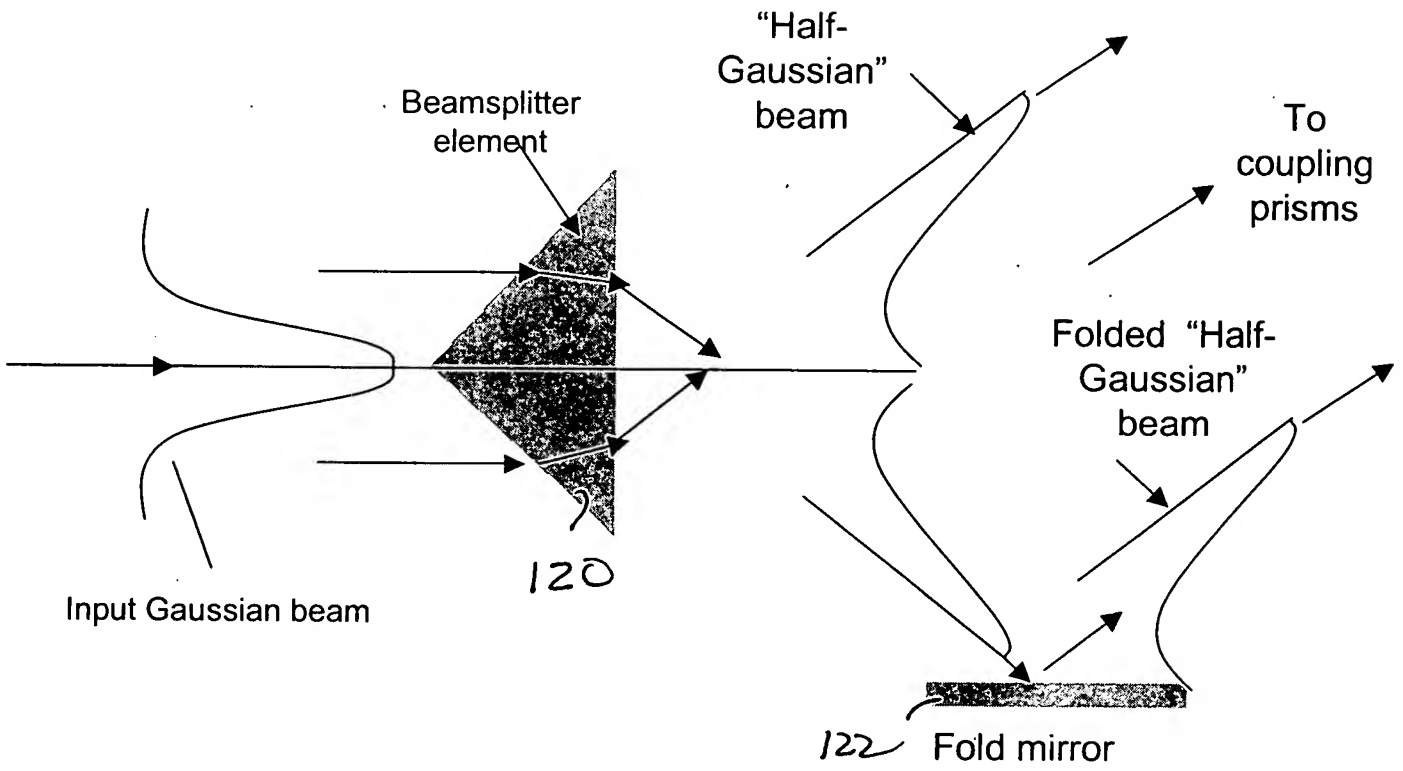
"Half-
Gaussian"
beam
Beamsplitter
element
To
coupling
prisms
Folded "Half-
Gaussian"
beam
120
Input Gaussian beam
122
Fold mirror

FIG. 21

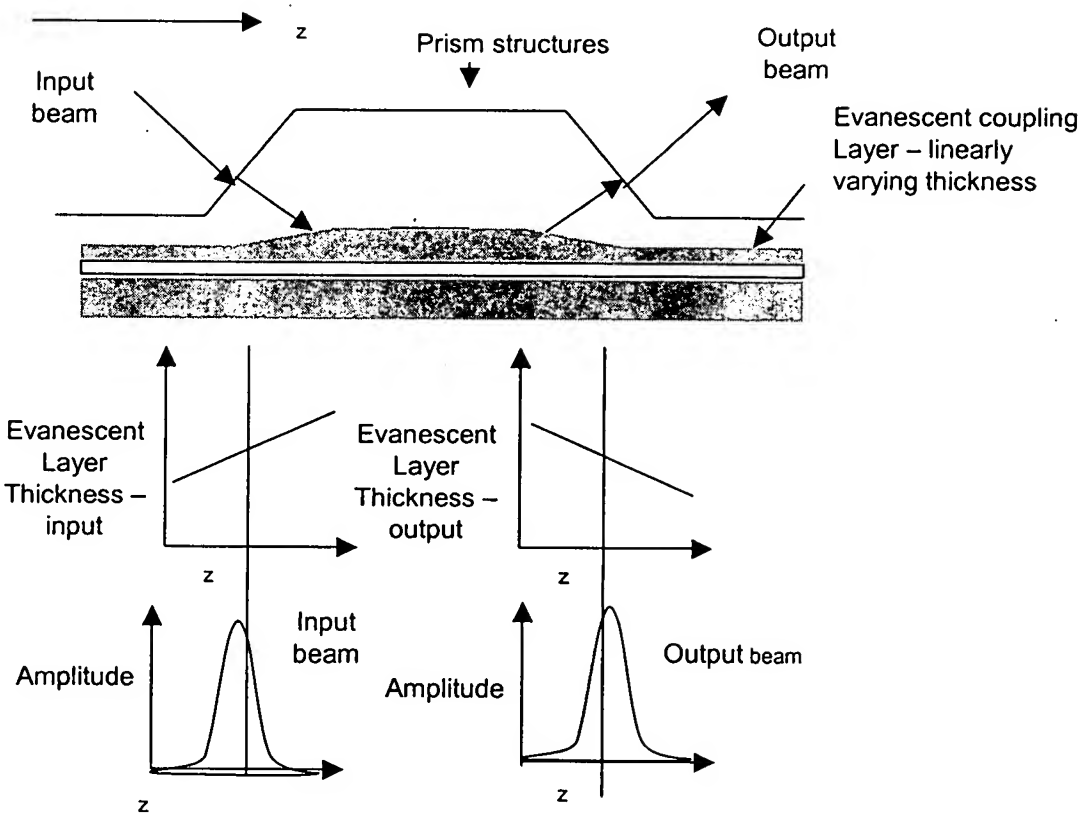

FIG. 22